April 2023

Description

The universal SPD Programmable Loop Display accepts a 4-20mA input from a process transmitter or similar analog device and indicates real-time process status in mA, percent or any designated engineering unit (EGU) on its 5-digit display. Both the process value and engineering unit (up to 5 characters) are shown on the display.

PC- or Site-Programmable
The SPD sets up in a minute or less using our single window Intelligent PC Configuration Software. For configuring the SPD on site, or to make quick changes after installation, front panel controls combined with menu prompts shown on the display guide you through the configuration process.

Ideal for on-site indication in field environments, the SPD's rugged metal enclosure mounts on a surface or 2-inch pipe.

Features

- **Extra-large 5-digit display with back-lit option.** The SPD has large 29mm (1.15 in) digits for long distance viewing. An optional back-lit display (-BL option) makes it easy to read in dimly lit or dark conditions.

- **Superior accuracy.** Displays process information with phenomenal accuracy of ±0.012% of input scale.

- **Low voltage drop.** The standard SPD is loop-powered by less than 2.3 Volts, so it won't burden most loops.

- **Operates in low temperature conditions.** The SPD will operate in ambient conditions as low as -40°F (-40°C).

- **Custom and square root curves.** Select a square root or linear curve from our library, or create a custom curve using up to 128 linearization points.

- **RFI/EMI immunity.** The SPD is resistant to the harmful and unpredictable effects of radio frequency and electromagnetic interference.

Certifications

CSA-International (Canada & US)*
Non-Incendive
Class I, Div. 2, Groups A, B, C, D
Class II & III, Division 2, Groups F & G

Temperature Code - T5@85°C/T6@60°C
Environmental Protection: Type 4X, IP66

CE Conformant - EMC Directive 2014/30/EU
EN 61326

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* NI approval is for 2.3VLP unit with or without the backlight (-BL) option. 4-20mA loop & +24Vdc backlight are wired separately.

SPD

Programmable Field-Mount
Loop Display (Type 4X, IP66)

Specifications

Display	**Type:** LCD; Top Row, 29.21mm (1.15 in) high black digits on a reflective background; Bottom Row, 15.24mm (0.6 in) high black digits on a reflective background
	Format: Top Row is five alphanumeric characters plus sign and decimal point; Bottom row is five alphanumeric characters
	Range: -99999 to 99999
	Display Update Rate: 100msec
	Minimum Display Span: 1.00
Performance	**Accuracy:** ±0.012% of input scale (Includes the combined effects of linearity, hysteresis, repeatability, and adjustment resolution. It does not include ambient temperature effect)
	Stability: 0.09% of span for 1 year; 0.16% of span for 3 years; 0.2% of span for 5 years
	Resolution: 0.0028% of input scale

Performance (Continued)

Over-Current Protection: 100mA absolute maximum

Display Input Over-range: 24mA

Digital Input Filter: User-programmable; 50 or 60Hz

Minimum Input Signal: 3.8mA

Input Loop Burden: Volt Drop: 2.3V; 5.1V with -LMD added & SPD removed. Equivalent Resistance: 115 ohms @ 20mA; 255 ohms @ 20mA with -LMD added and SPD removed.

Response Time: NORMAL LINEARIZATION MODE: 180msec or less for input to display on a step input from 10% to 90% of the input scale CUSTOM LINEARIZATION MODE: 200msec or less for input to display on a step input from 10% to 90% of the input scale

Damping: User-selectable for 0-30 seconds

Ambient Conditions

Operating Range: -40°C to +85°C (-40°F to +185°F) Some slowing of display response time will occur below -25°C (-13°F)

Storage Range: -45°C to +85°C (-49°F to 185°F)

Relative Humidity: 0-95%, non-condensing

Ambient Temperature Effect: ±0.005% of span/°C maximum

RFI/EMI Immunity: 20V/m@80-1000MHz, 1kHz AM, when tested according to IEC1000-4-3-1995

Common Mode Rejection: 100dB@ 50/60Hz

Normal Mode Rejection: 50dB@ 50/60Hz, 10mA p-p maximum

Weight 1.56 kg (3.44 lbs)

Ordering Information

Unit	Input	Output	Power	Options	Housings
SPD Site-Programmable Display	**4-20MA** Loop Input	**PRG** Programmable with supplied configuration software to display a percent or any other engineering unit (EGU) of up to 5 characters	**2.3VLP** Loop Powered	**-BL** Back-lit display (wired separately from a 24VDC power supply) **-LMD** Line Maintenance Diode provided at input terminals allowing the SPD to be removed from the loop without interrupting loop continuity	**FH** Field-mount Type 4X, IP66 housing (standard unit comes with one wire entry port for input wiring; units with -BL option come with two wire entry ports, one for input wires and one for -BL wires) **P** suffix indicates housing is equipped with 2-inch pipe-mount hardware kit

To order, specify: Unit / Input / Output / Power / Options [Housing]
Model Number Example: SPD / 4-20MA / PRG / 2.3VLP / -BL [FH]

Versatile Programming Options

The SPD can either be custom scaled to display a percent or scaled directly into engineering units for indicating measurements such as pressure, temperature, level, or flow.

Input zero and full scale values can be selected using the software, or the SPD will read and "capture" the actual range limits of the loop to provide you with the most accurate display reading available. To compensate for input inaccuracies, the input can be custom trimmed. The decimal point location within the 5-digit reading is also user-selectable, and a 0-30 second damping period can be set to "smooth out" erratic input signals.

Custom and Square Root Curves

Select a square root or linear curve from our library, or create your own using up to 128 linearization points. Use our set up software to input a table in one engineering unit and have the PC program convert it into a different EGU for display.

Each SPD order comes with one copy of our Configuration Software (Windows® compatible) on CD.

To order additional software or cables:

Part Number	Part
750-75E05-01	Intelligent PC Configuration Software

Additional Parts
The communications cables must be purchased separately:

P/N 804-030-26-   Non-Isolated Fuse Protected USB Communication Cable (required by IECEx and ATEX for products installed in Intrinsically Safe areas)

P/N 803-040-26-   Fuse Protected, Non-Isolated Serial Configuration Cable for 2-Wire Instruments

Figure 1. *Installation Dimensions*

FRONT VIEW

SIDE VIEW

BOTTOM VIEW